

SEMINAR

DEPARTMENT OF PHYSICS

Nucleosynthesis in Compact Stars at High Densities, Temperature and Strong Magnetic Fields

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2:00 PM

Room 149, Science Building

ABSTRACT

We are to studying the effects of temperature, density and locally generated strong magnetic fields on nucleosynthesis in compact stars. Extremely high densities and strong magnetic fields are expected to generate relativistic plasmas in the core of neutron stars. As a first step towards this study, we need to understand the effect of tremendously high densities and large magnetic fields on the electroweak decays. Modification in QED coupling and its relevance to the phases of highly energetic systems is to be studied. Renormalization technique will help us to find out the behavior of the QED coupling in such systems. Electric charge, QED coupling and the properties of QED medium are associated with local changes in temperature, chemical potential and magnetic field in small regions of neutron star. We will study the local behavior of Quantum Electrodynamics in the regions of strong magnetic fields at extremely high densities and temperatures of compact stars such as neutron stars.